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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/888,568	06/26/2001	Masatoshi Tanaka	0229-0651P	9463

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EXAMINER
KNABLE, GEOFFREY L

ART UNIT	PAPER NUMBER
1733	3

DATE MAILED: 12/06/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/888,568	Applicant(s) TANAKA, MASATOSHI
	Examiner Geoffrey L. Knable	Art Unit 1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-6 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-6 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

1. Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, lines 1+, reference is made to a method of making a tire, the tire comprising a tread, sidewall, beads, carcass, etc. The actual positive steps of the method however only describe applying a belt and band, this raising an ambiguity in the scope of the claim. It is suggested that the claim be recast in Jepson form to avoid this ambiguity – e.g. by changing "A method..." in line 1 to –In a method— and changing "said method comprising" to –the improvement comprising--.

In claim 3, the equation in the last line is inconsistent with the parameters described earlier in the claim – note in particular the equation refers to "Re" and "De" whereas no such parameters are defined in the claim. Clarification/correction is required.

Similarly, in claim 6, the equation in the last line is inconsistent with the parameters described earlier in the claim – note in particular the equation refers to "Re" and "Te" whereas no such parameters are defined in the claim. Clarification/correction is required.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Bormann et al. (US 4,869,307) or Watanabe et al. (US 5,076,336) or Ushikubo et al. (US 4,824,501) or Kojima et al. (US 5,032,198).

Bormann et al. discloses building a tire in which the belt/breaker and band are formed on a cylindrical drum (e.g. fig. 8), the band being formed by spirally winding band cords so as to have gradually increasing overlap and thus cord density in the axial direction from the center outwards – note esp. fig. 5. Similarly, Watanabe et al. discloses building a tire in which the belt/breaker and band are formed on apparently a cylindrical drum (note the cylindrical form of for example fig. 5), the band being formed by spirally winding band cords so as to have gradually increasing overlap and thus cord density in the axial direction from the center outwards – note esp. fig. 5 as well as col. 3, lines 56-64 and col. 4, lines 35-57.

Ushikubo et al. discloses building a tire in which the belt/breaker and band are formed on a cylindrical drum, the band being formed by spirally winding band cords so as to have gradually increasing tension in the axial direction from the center outwards – note esp. col. 2, lines 30-37 and col. 4, lines 37-68. Similarly, Kojima et al. discloses building a tire in which the belt/breaker and band are formed on a drum, the band being formed by spirally winding band cords so as to have gradually increasing tension in the

axial direction from the center outwards – note esp. col. 9, line 39 – col. 10, line 7. Further, although the preferred form of this invention in Kojima et al. (like the alternate embodiment in Ushikubo) uses a contoured drum, the reference clearly indicates that a linear or cylindrical drum shape (e.g. fig. 22) can be used, this being the embodiment where the tension variation is employed (note esp. col. 17, lines 30-45 as well as col. 19, lines 17-20 indicating that the contoured drum (like in Ushikubo) can use constant tension).

5. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bormann et al. (US 4,869,307) or Watanabe et al. (US 5,076,336) as applied to claim 1 above, and further in view of Kojima et al. (US 5,032,198) and optionally Ushikubo et al. (US 4,824,501).

Bormann et al. and Watanabe et al. clearly each suggest a process in which the band is wound to have gradually increasing cord density from the center outwards. These references thus are clearly desiring higher reinforcing at the shoulders but do not however indicate how these densities are chosen and/or how they relate to the finished tire radii. Kojima et al. is also directed to spirally wound band cords and in particular evidences an understanding in this art that a wound band, when wound on a cylindrical drum, will have a reduced reinforcing effect towards the shoulders due to the shaping of the tire into convex form with vulcanization – note esp. col. 3, line 45 – col. 4, line 22. In other words, the wound band cords at the shoulder will become relatively more slack as compared to the cords at the center since the tire when shaped has a convex form with a greater diameter at the center, this reducing the reinforcing effect at the shoulders.

Ushikubo et al. provides additional evidence of this known problem (note esp. col. 1, lines 13-60). To avoid this problem, Kojima et al., as well as Ushikubo et al., indicate that the band can be wound on a convex rather than a cylindrical drum at constant tension or the band can be wound at increasing tension towards the shoulders to provide the necessary increased reinforcing effect at the shoulders in the final tire – importantly, Kojima et al. further indicates that this tension variation can be selected so as to correspond to the "differences of the outer diameters between the crown portion and other positions of the band in finished tire" (col. 9, lines 62-68). Also, note that Kojima evidences an understanding that it is known in this art that the use of tension variation is an alternative means to achieve the same end result as increasing the cord density – note esp. col. 9, lines 39-53. Further, note that Kojima et al. clearly contemplates changing winding pitch as one way to achieve the desired avoidance of the problems that occur because of the changing reinforcing effect at the shoulders – note esp. col. 24, lines 15-29.

Given the knowledge of the artisan with respect to the problem of reduced band reinforcing at the shoulders due to convex tire shaping as evidenced by the Kojima and Ushikubo references, as well as the fact that apparently one way to help counteract this is with increasing cord density at the shoulders (as in the primary references), it is submitted that the ordinary artisan would have found it to have been obvious to select the desired cord densities based upon or corresponding to the convex shape of the finished tire, and thus the radii of the band in the finished tire, along the axial direction as required by claims 2-3. As to whether this correspondence achieves densities equal

to the radii relationship (as in claim 2) or greater than the radii would suggest (as in claim 3), it is submitted that Kojima et al. would have motivated the artisan to select either expedient – note esp. col. 9, lines 39-49 and col. 24, lines 15-20 of Kojima et al. where it indicated that either uniformity can be achieved or if desired greater reinforcing at the shoulders can be provided. To select either would therefore have been obvious and lead to only the expected results. Further, an increased density at the shoulders would have been expected to provide an additional or added reinforcement and thus security at the shoulders where potential high speed running separation problems would be most likely to initiate. The requirement of claim 4 is further certainly obvious and further clearly suggested by e.g. Kojima et al.

6. Claims 1-6 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kojima et al. (US 5,032,198).

As already noted, Kojima et al. discloses a process in which the band is wound to have gradually increasing cord tension from the center outwards, the reference further clearly indicating that a linear or cylindrical drum shape (e.g. fig. 22) can be used, this being the embodiment where the tension variation is employed (note esp. col. 17, lines 30-45 as well as col. 19, lines 17-20 indicating that the contoured drum (like in Ushikubo) can use constant tension.). Kojima et al. thus teaches or certainly renders obvious what is defined in claim 1. Kojima et al. further indicates that this tension variation can be selected so as to correspond to the "differences of the outer diameters between the crown portion and other positions of the band in finished tire" (col. 9, lines 62-68). Such is considered to suggest or certainly render obvious a relationship as

defined in claim 5. As to claim 6, note that this reference further indicates at esp. col. 9, lines 39-49 and col. 24, lines 15-20 that either uniformity can be achieved (i.e. claim 5) or if desired greater reinforcing at the shoulders can be provided by winding at even greater tension towards the shoulders – such is considered to teach or certainly render the claim 6 requirement obvious to the ordinary artisan.

As to claims 2 and 3, note that Kojima evidences an understanding that it is known in this art that the use of tension variation is an alternative means to achieve the same end as increasing the cord density – note esp. col. 9, lines 39-53. Further, note that Kojima et al. clearly contemplates changing winding pitch as one way to achieve the desired avoidance of the problems that occur because of the changing reinforcing effect at the shoulders (note esp. col. 24, lines 15-29). It is submitted that this would have taught or the ordinary artisan would have found it to have been obvious to select the desired cord densities corresponding to the convex shape of the finished tire and thus the radii of the band in the finished tire along the axial direction as required by claims 2-3. As to whether this correspondence achieves densities equal to the radii relationship (as in claim 2) or greater than the radii would suggest (as in claim 3), it is submitted again Kojima et al. teaches or certainly would have motivated the artisan to select either expedient – note esp. col. 9, lines 39-49 and col. 24, lines 15-20 of Kojima et al. where it indicated that either uniformity can be achieved or if desired greater reinforcing at the shoulders can be provided. To select either is therefore considered to have been taught or in any event would have been obvious and lead to only the expected results. Further, an increased density at the shoulders would have been

expected to provide an additional or added reinforcement and thus security at the shoulders where potential high speed running separation problems would be most likely to initiate. The requirement of claim 4 is further certainly taught/suggested by Kojima et al.

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ushikubo et al. (US 4,824,501).

As already noted, Ushikubo et al. discloses building a tire in which the belt/breaker and band are formed on a cylindrical drum, the band being formed by spirally winding band cords so as to have gradually increasing tension in the axial direction from the center outwards – note esp. col. 2, lines 30-37 and col. 4, lines 37-68. As to claim 5, note that this reference also indicates that the goal of this changing tension is to achieve uniform tension in the cords in the finished tire and thereby avoid the problems created when the band is shaped from cylindrical form to its final convex form (e.g. col. 2, line 38 – col. 3, line 10 and col. 4, lines 37-68). To achieve this, it is submitted that the relative radii along the convex shape of the tire must have been taken into account and the relative tension values be made to correspond thereto as required by claim 5. Further, even if it were deemed not to be implicit in the reference discussion, it is submitted that such would have been certainly the natural and obvious selection for the ordinary artisan following the teachings of this reference. The requirements of claims 5 are thus considered anticipated or certainly obvious from this disclosure. Note also that Ushikubo indicate that the degree of correspondence and thus the degree of final uniformity can be selected as desired – the concept of

"averaged" tension over a certain width is also thus clearly contemplated and obvious – note esp. col. 4, lines 53-68 where the tire is divided into 3, 4 or more areas or total gradual change can be adopted.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey L. Knable whose telephone number is 703-308-2062. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael W. Ball can be reached on 703-308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.

Geoffrey L. Knable
Primary Examiner
Art Unit 1733

G. Knable
December 2, 2002